LANSCE Los Alamos Neutron Science Center

The Los Alamos Neutron Science Center (LANSCE) is a premier accelerator-based multidisciplinary research facility that provides the scientific community with intense proton and neutron sources. LANSCE is a world-class Laboratory facility that ensures the viability of the nation's nuclear deterrent. It has the capability to perform experiments for both civilian and national security research. In addition, LANSCE serves an international community in conducting diverse basic and applied research.

National Security

LANSCE provides solutions to a number of national security problems. LANSCE is a mission-critical facility for the National Nuclear Security Administration (NNSA) and the Department of Energy (DOE) since 1972. It remains at the forefront of national security work because the LANSCE intense proton beam (and delivery modes) can be tailored to meet constantly changing scientific, national security, and programmatic needs.

Capabilities

At the heart of LANSCE is a high-intensity linear accelerator (LINAC). One of the nation's most powerful proton linear accelerators, LINAC provides an 800-mega-electron-volt (800 MeV) beam that accelerates protons to 84% the speed of light. When the accelerated protons strike a target of tungsten metal, neutrons are produced. These neutrons and protons are used to investigate a wide range of science and technology applications that support the nation's nuclear deterrent capabilities.

LANSCE is the only LINAC-based U.S. facility equipped to conduct classified research on stockpile materials and components. LANSCE scientists utilize the accelerator's unique capabilities to support research in materials sciences, nanotechnology, nuclear medicine, biomedical research, electronics testing, and fundamental physics. Projects at LANSCE include research on materials under extreme temperatures and pressures, high explosives used to initiate weapons detonations, and radioisotope production for medical diagnostics and treatments.

Facilities

Today, five facilities operate simulataneously at LANSCE. These include the Isotope Production Facility, Lujan Center, Proton Radiography Facility, Ultracold Neutrons Facility, and the Weapons Neutron Research Facility.

To operate continually, reliably, and to its original specifications, key accelerator and infrastructure components at LANSCE are being upgraded, redesigned, and replaced. This investment ensures that LANSCE will continue to support the national security science work needed to ensure the nation's nuclear deterrent, its energy security, and to solve the many other challenges the U.S. government brings to the Laboratory.

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